

2016/17 ROADS MAINTENANCE REPORT

COUNTY OF SAN LUIS OBISPO



County of San Luis Obispo
Department of Public Works
Transportation Division – Roads Maintenance
Fiscal Year 2016-17

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Introduction

The primary objective of the Department of Public Works Transportation Division is to enhance mobility in our county. This objective is realized in part through a comprehensive Roads Maintenance program.

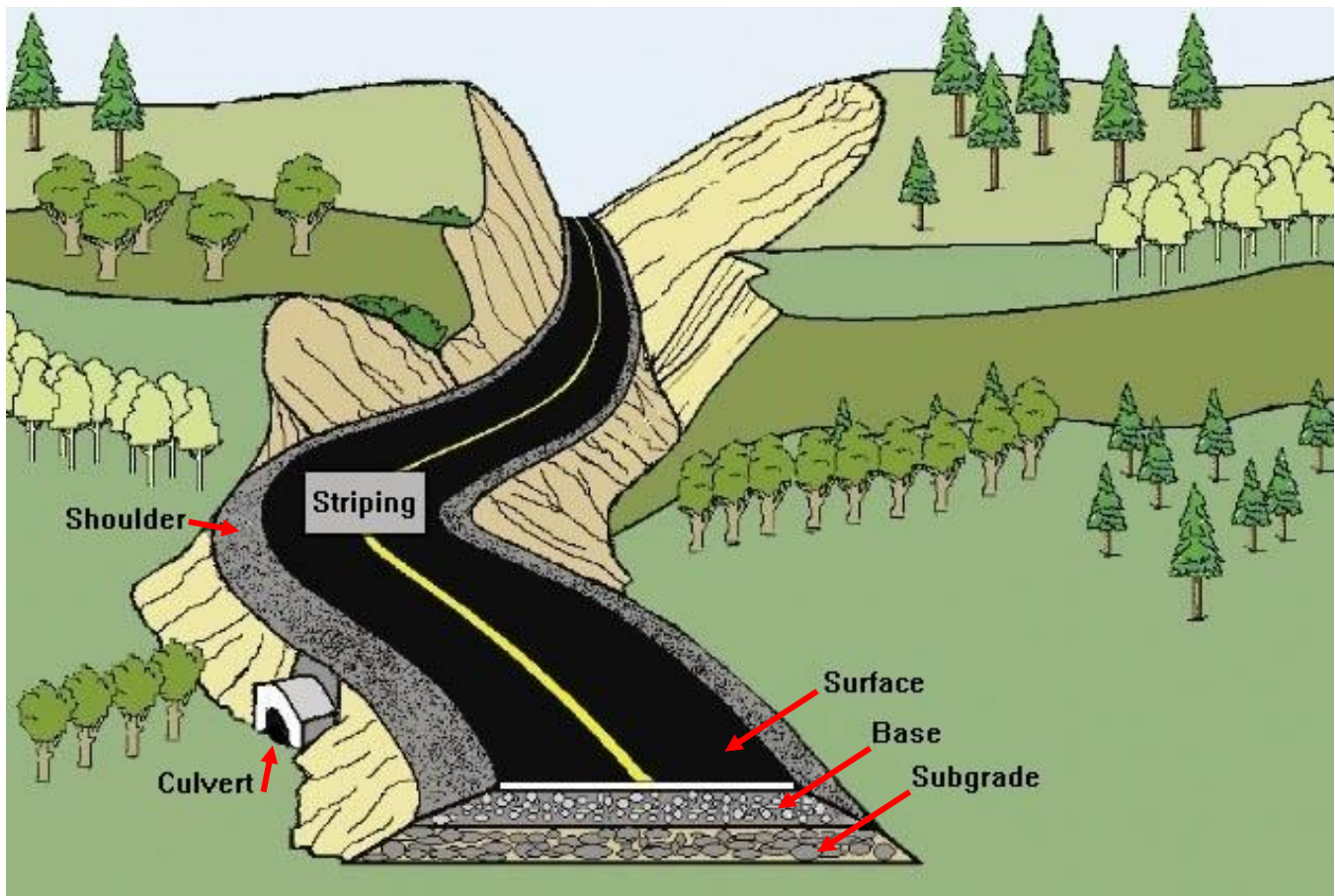
Policy establishes the priorities of the program as **Maintenance**, **Safety**, and **Betterment**. These are achieved through preventive and corrective maintenance services, careful management of equipment and budget, and proper staff training. *(Refer to Appendix A – Policies to Govern the Operation and Maintenance of the County Highway System)*

Roads Maintenance crews are dedicated to providing a safe environment, conducting work year-round and often around the clock. Services provided by this program are essential to ensuring safe mobility for emergency responders, commuters, cyclists, citizens, commerce, agriculture, and visitors.



TURRI ROAD, LOS OSOS

Components of a Maintained Road



The most obvious aspect of a road may be the asphalt surface, but there are many other infrastructure components that must be maintained. Roads Maintenance is tasked with ensuring the safe and operational conditions of not only the traveling surface, but also the characteristics shown in the image above plus many others not pictured. Maintenance of these structures proves to be a continuous effort, as conditions are constantly changing due to weather, wear, and the overall age of the infrastructure. The lists to the right give an example of the road components requiring routine maintenance.

Shown in illustration:

- Culverts
- Shoulders
- Striping
- Surface
- Base
- Subgrade
- Trees & Vegetation

Not shown:

- Bridges
- Berms
- Cattle guards
- Ditches
- Drainage Basins
- Guardrail
- Retaining Walls
- Side Drains
- Signs
- Traffic Signals

Services Provided by Roads Maintenance

Day-to-day activities include sweeping, culvert inspections and cleaning, traffic signal maintenance, pothole repair, and more. Roads Maintenance services are essential to ensuring safe mobility on County-maintained roads. In the event of a storm or emergency, Roads Maintenance is responsible for clearing slides and fallen debris, repairing washouts, and delivering barricades and flashing signs.

Road Maintenance

- Emergency response and call out
- Debris and litter removal
- Inspections – pavement and roadway
- Bike lane work
- Base repair, crack sealing, and spot sealing
- Hand patching and major patching
- Preparation for surface treatments
- Shoulder grading and reconditioning
- Gravel road repair, grading, and graveling
- Adopt-A-Road work
- ADA ramp repair and maintenance
- Vandalism repair
- Erosion control
- GIS Field Work

Bridge Maintenance

- Bridge inspection, maintenance, and repair
- Guardrail inspection, maintenance, and repair
- Cattleguard inspection, maintenance, and repair

Vegetation Maintenance

- Mowing
- Brush and tree trimming
- Vegetation and tree removal

Our Road System

The County of San Luis Obispo maintains a road system which includes the following:

- 1,336 miles of maintained roads
 - 1,092 miles of paved roads
 - 244 miles of unpaved roads
- 198 bridge structures
- 624 segments of guardrail
- 169 cattleguards
- 22 signalized intersections
- 14 flood control basins for roads
- 1,220 ADA curb ramps
- 4,950+ road drainage culverts
- 26,100+ road signs

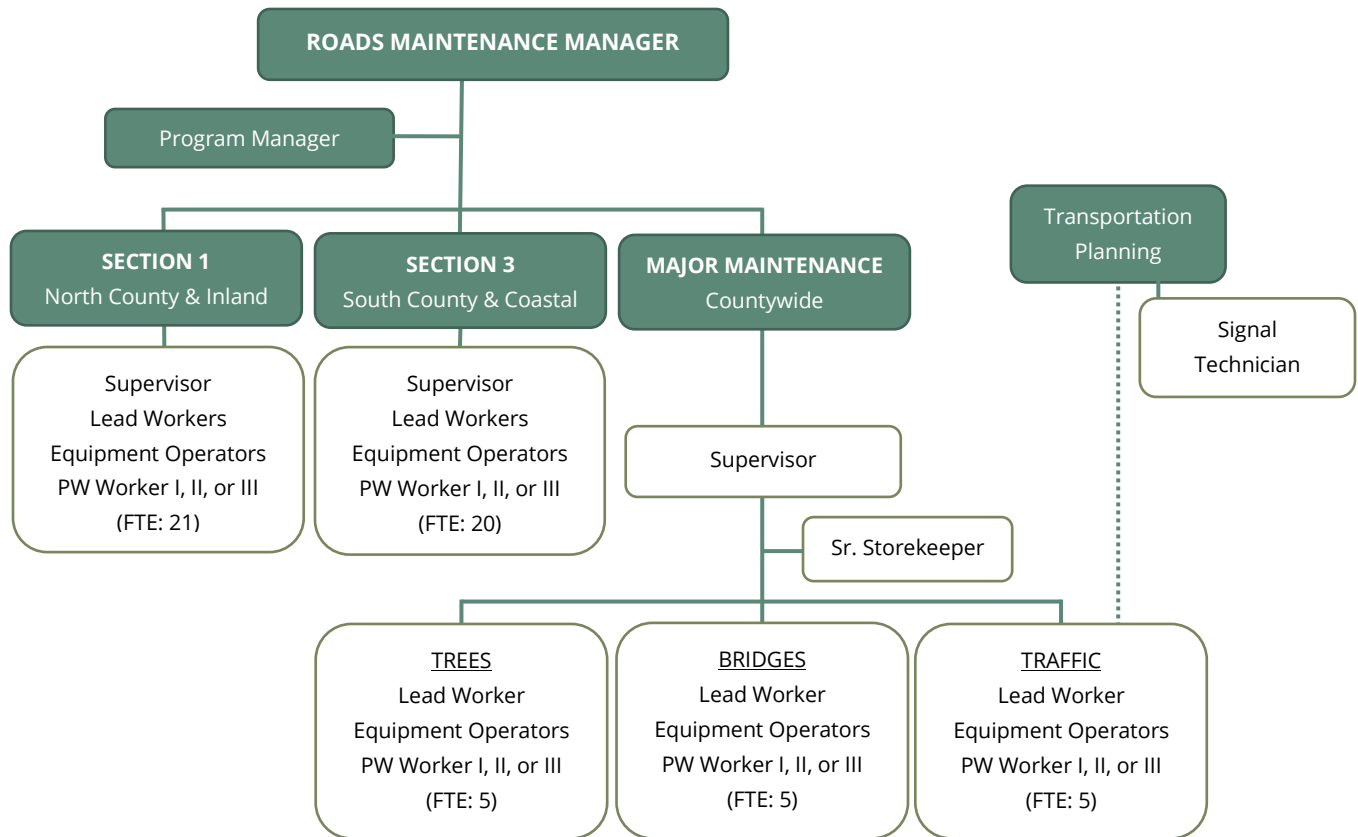
Traffic Operations & Sign Maintenance

- Sign fabrication, installation, and maintenance
- Traffic signal and street lighting maintenance
- Pavement markings, striping, guide markers, reflective markers

Drainage & Stormwater Permit Compliance

- Water Quality Control Program, NPDES compliance
- Culvert inspection, maintenance, and repair
- Basin inspection and maintenance
- Sweeping
- Storm preparedness

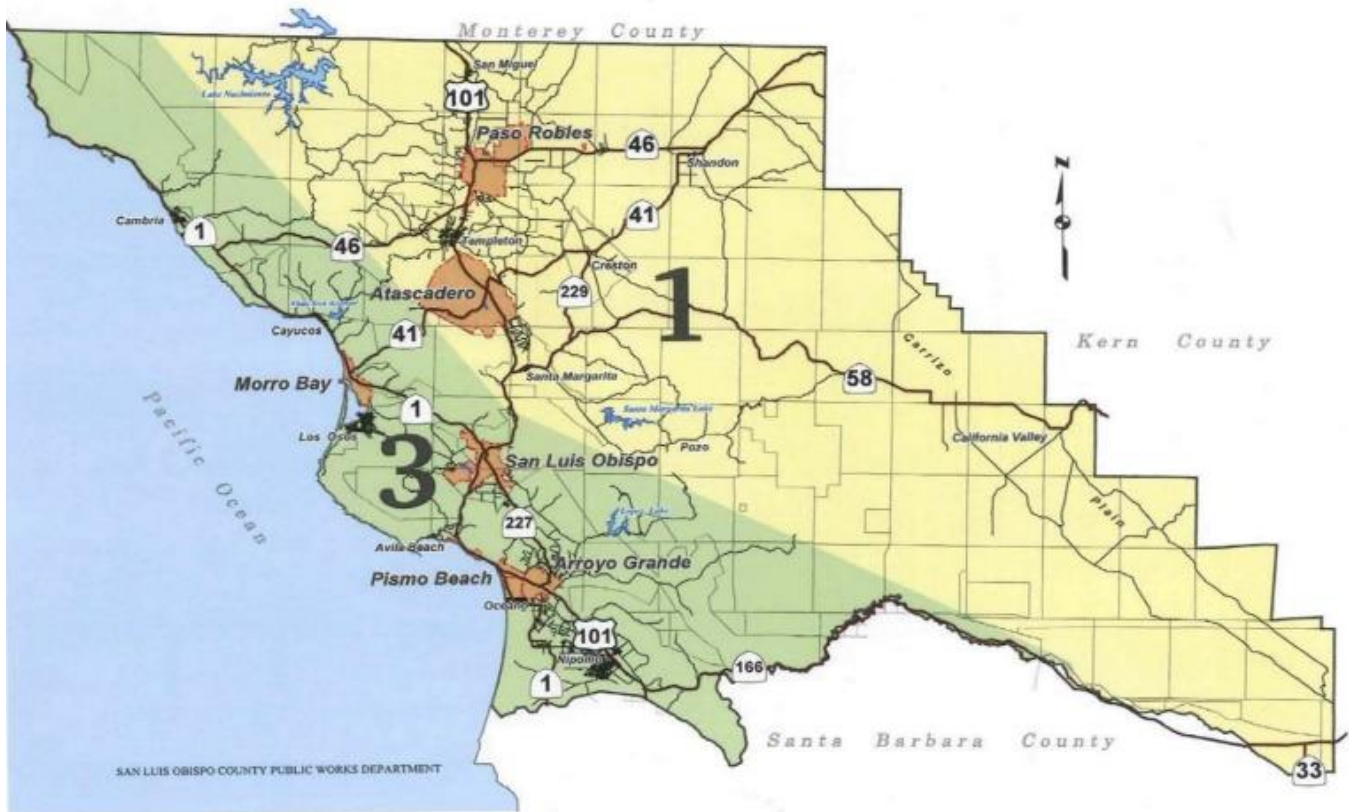
Staffing Organization



Roads Maintenance staff operate from three facilities: two in San Luis Obispo and one in Paso Robles. Vehicles, equipment, materials, and supplies are stored at the three facilities, including the sign fabrication shop and the Public Works Warehouse. Management and administration operates from downtown San Luis Obispo

Operational Areas

Staff is organized by operational area and typical work conducted. This includes Section 1 – North County & Inland, Section 3 – South County & Coastal, and Major Maintenance – Trees, Bridges, and Traffic. Major Maintenance serves the entire County of San Luis Obispo.

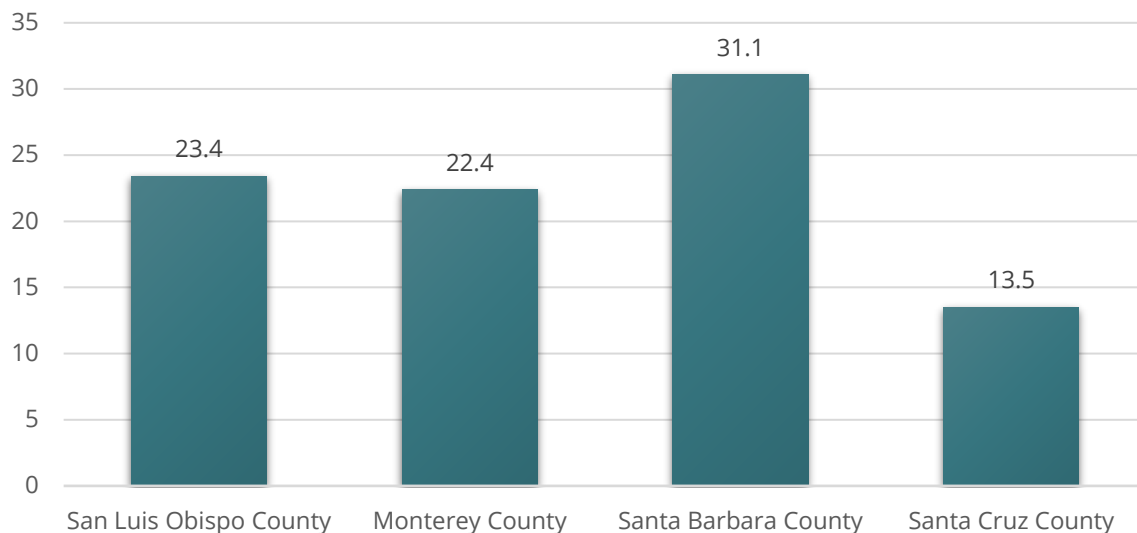


Neighboring Counties Comparison

There are 57 field staff positions in the Roads Maintenance program responsible for maintaining 1,336 miles of road. Staff examined how the County of San Luis Obispo's Roads Maintenance program compared to neighboring counties and found that the ratio of road miles per staff person are comparable with the County of Monterey and the County of Santa Barbara. Refer to the table and chart below for a more detailed comparison of the evaluated Roads Maintenance programs.

	Total Road Miles	Unincorporated Population	Total Land Area (Sq. Mi.)	Maintained Bridges	Maintenance Yards	Staffing								
						Supervisors	Road Maintenance Crew	Traffic Maintenance Crew	Tree Maintenance Crew	Bridge Maintenance Crew	Total Field Staff	Signal Technician(s)	Management & Office Staff	Total Road Maintenance Program Staffing
San Luis Obispo County	1,336	120,552	3,298	199	3	3	39	5	5	5	57	1	2	60
Monterey County	1,234	107,642	3,771	173	4	6	39	4	0	6	55	0	3	58
Santa Barbara County	1,648	139,052	2,748	100	5	3	38	6	6	0	53	2	9	66
Santa Cruz County	607	129,739	445	98	1	5	40	0	0	0	45	0	1	46

Road Miles per Field Staff



Equipment

Roads Maintenance owns and maintains a fleet comprised of 173 pieces of equipment. The fleet is monitored by the Program Manager, with oversight by the Roads Maintenance Manager and technical support provided by the Central Services Department Fleet Services Division. *(Refer to Appendix D – Roads Maintenance Equipment List” for a complete list of equipment)*

Equipment Maintenance & Replacement

Public Works utilizes the Central Services Department Fleet Services Division for equipment maintenance and repair. The Roads Maintenance fleet is managed under a comprehensive preventive and predictive maintenance program, and each piece of equipment is monitored using the specialized fleet management software FASTER.



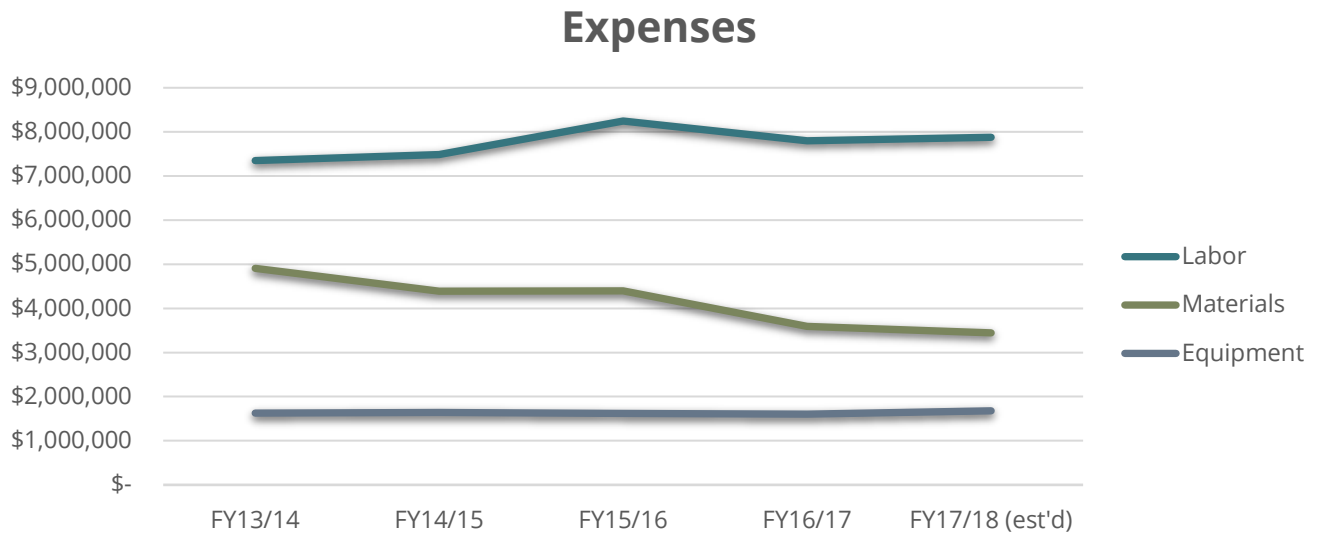
Equipment expenses are closely monitored, as well as routine maintenance schedules, repairs, utilization rates, equipment assignments, and equipment depreciation. These factors, in addition to the equipment usefulness, overall condition, and replacement costs, are reviewed when equipment is evaluated for replacement. California Air Resources Board (CARB) compliance and emission standards are also key criteria to consider when evaluating equipment for replacement. The Public Works fleet is self-funded through the Internal Services Fund (ISF).

Regulatory Compliance

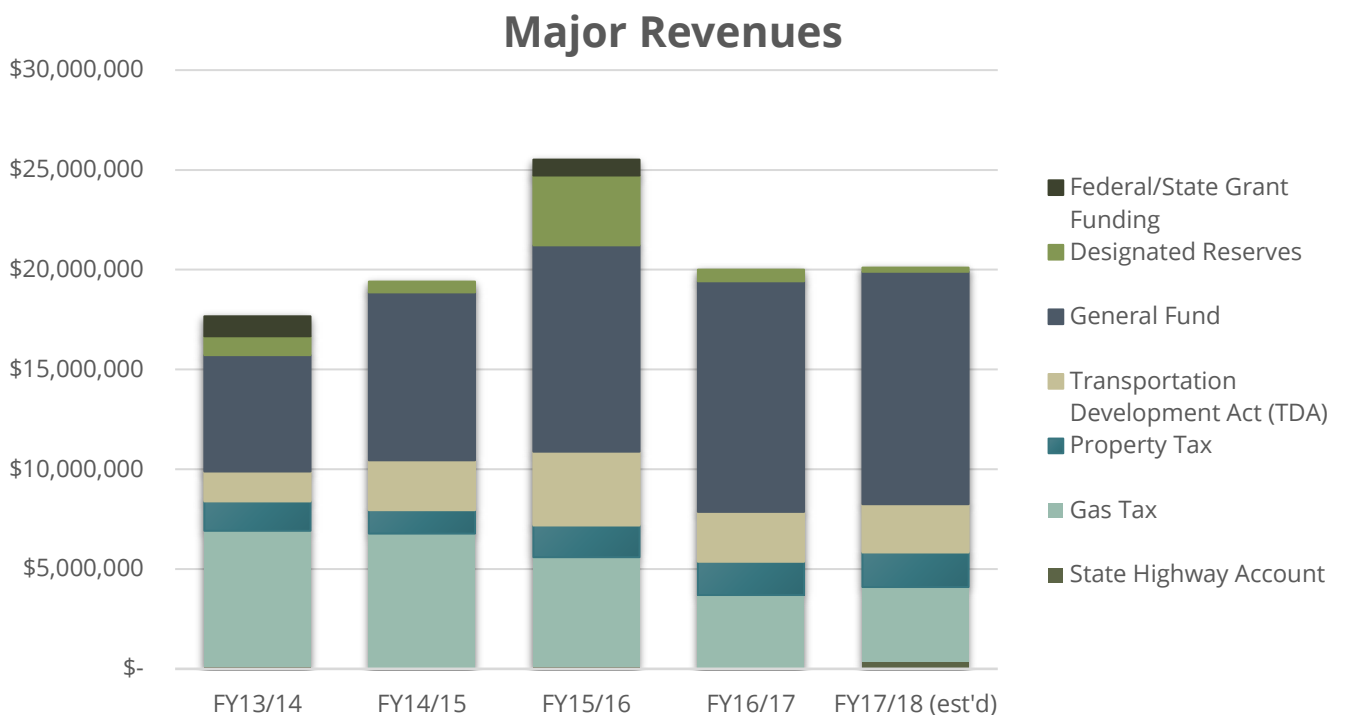
Adhering to emissions regulations and California Air Resources Board (CARB) requirements is an important aspect of public fleet management. Emission standards are monitored for all on-road, off-road, and portable equipment. Replacement equipment, when needed, will be verified for compliance when ordered.

Smog checks are conducted as required, with compliance reporting submitted annually to the California Bureau of Automotive Repair (BAR). CARB compliance of on-road equipment has been fully achieved, and heavy on-road diesel vehicles are regularly monitored under the Periodic Smoke Inspection Program (PSIP). Off-road equipment currently meets CARB regulatory requirements through January 1, 2028. Portable equipment is a unique aspect of CARB compliance; applicable equipment is registered with the Portable Equipment Registration Program (PERP) and reported to the San Luis Obispo Air Pollution Control District (APCD).

Annual Expenses & Funding



Roads Maintenance is funded through several sources, such as property taxes and the General Fund. The amount of available funding is not guaranteed and generally fluctuates with economic changes. Thus, the Public Works Department manages the funds conservatively, and closely monitors maintenance costs through reporting and long-term planning.



Maintenance Requests

Maintenance Schedule

While maintenance happens year-round, maintenance activities follow a general schedule from year-to-year. The following maintenance activities occur year-round:

- Sweeping
- Hand patching
- Litter and roadkill pick-up
- Tree trimming
- Cattle guard maintenance
- Guardrail maintenance
- Sign maintenance
- Culvert maintenance
- Traffic signal maintenance
- Bridge maintenance

Certain maintenance activities require specific weather conditions and temperatures, which may impact the effectiveness of materials being used and safety of staff. The following calendar identifies when condition-dependent activities are typically scheduled from year-to-year; however, scheduled activities may change due to weather conditions.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Storm Work												
Storm damage	January - April									October - December		
Flooding	January - April									October - December		
Debris clearance	January - April									October - December		
Road Work												
Paved Roads												
Corrective patching	January - December											
Major patching				April - October								
Shoulder work				April - October								
Surface treatment preparation				April - October								
Maintenance overlays				April - June								
Gravel Roads												
Grading				April - May						October - December		
Graveling				April - May						October - December		
Tree Work												
Trimming or removal requests	January - December											
Trimming for surface treatment preparation				April - October								
Traffic Operations												
Sign inspections & maintenance	January - April									October - December		
Pavement markings after surface treatment				April - October								
Drainage												
Culvert inspections & maintenance												
Within urban reserve boundaries	January - December											
Rural / outside urban reserve boundaries	January - March									September - December		

Request Priorities

The Public Works Department is committed to a high level of service for the community and works toward the three program priorities: **Maintenance**, **Safety**, and **Betterment**.

The Department receives maintenance requests daily through phone calls, emails, and web forms. Each maintenance request is assigned a priority based on the impact to road safety. Priorities determine the timeframe in which Department staff will assess the damage and determine the next step for restoration to operational condition, either to amend immediately or schedule the work to be completed. The table below outlines the priority levels and required timeframe to assess the damage.

Priority Level for Maintenance Requests	Required Assessment Time Frame
1	24 hours
2	4 days
3	7 days
4	14 days

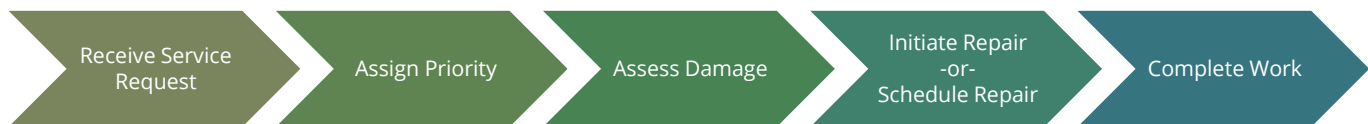
Sample Level Priority 1 maintenance requests:

- Stop sign down
- Hazardous material on the roadway
- Traffic signal malfunction
- Tree blocking the roadway
- Mudslide

Road work completed by the Department is either corrective maintenance or preventive maintenance. Both types of work are completed year-round with the goal of providing a well-maintained road system.

Process Flow

The Department utilizes SAP, a sophisticated asset management software, to record maintenance requests and maintenance activities. Each corrective maintenance request or preventive maintenance activity is recorded, along with the service type, location, date, and costs for staff, materials, and equipment.



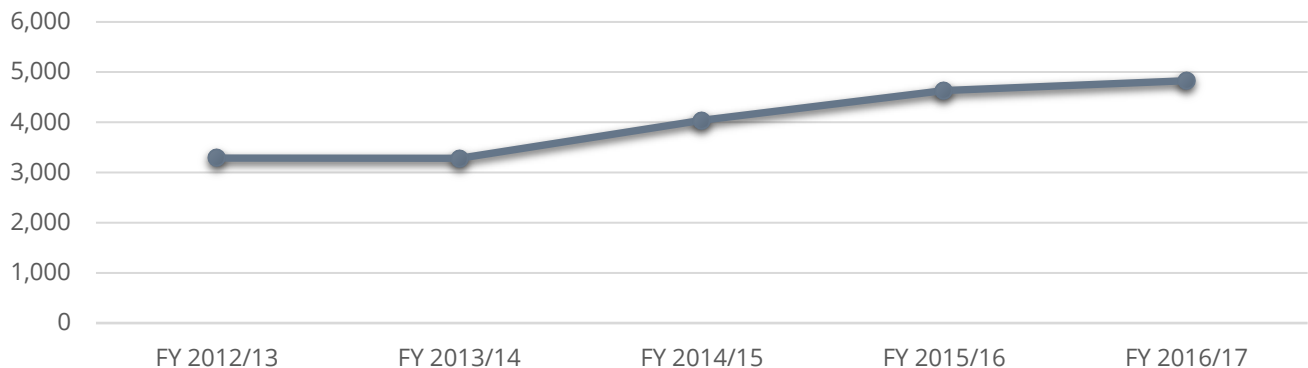
Mobile Notifications & Work Orders

Roads Maintenance Crews receive real-time notifications of incoming maintenance requests and are able to generate SAP work orders remotely. This allows for a quicker initial response, increased efficiency, and more accurate time and cost tracking.

Incoming Maintenance Requests

The number of incoming maintenance requests varies from year-to-year; in FY 2016-17, Roads Maintenance received and completed over 4,800 maintenance requests. Typically, more maintenance requests are received during storms or shortly thereafter, while fewer requests are submitted during fair weather.

Volume of Incoming Maintenance Requests



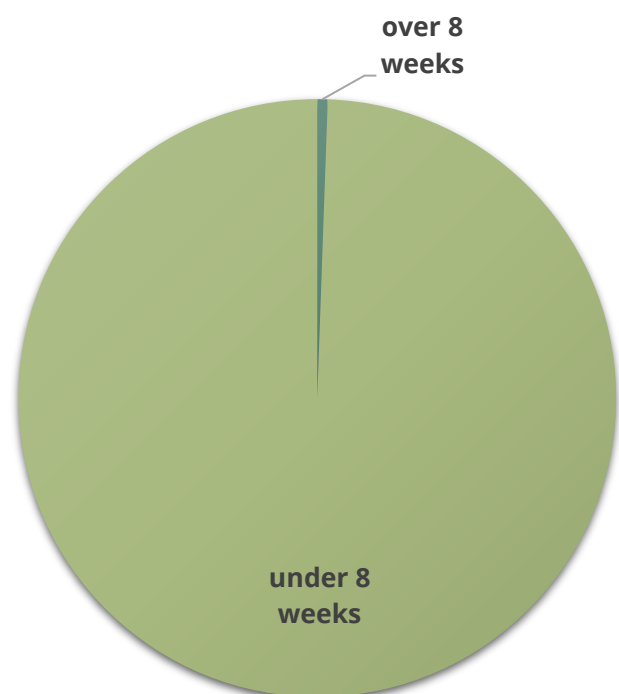
Maintenance Request Completion Times

Corrective maintenance work is scheduled based on the assigned priority level, and is typically completed within a maximum of 8 weeks from the initial maintenance request. Preventive maintenance tasks are planned throughout the year and are rescheduled as necessary to address priority corrective maintenance tasks.

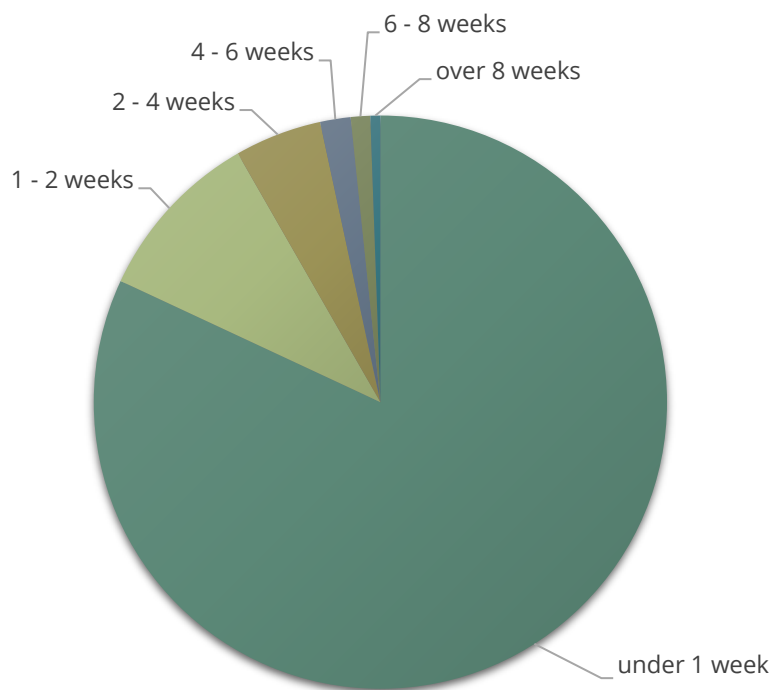
Number of corrective maintenance requests received in FY 2016-17: **4,829**

Number of corrective maintenance requests resolved within 8 weeks: **4,802**

99.4%
of all corrective maintenance requests were completed in under 8 weeks



Corrective Maintenance Work Completion Durations

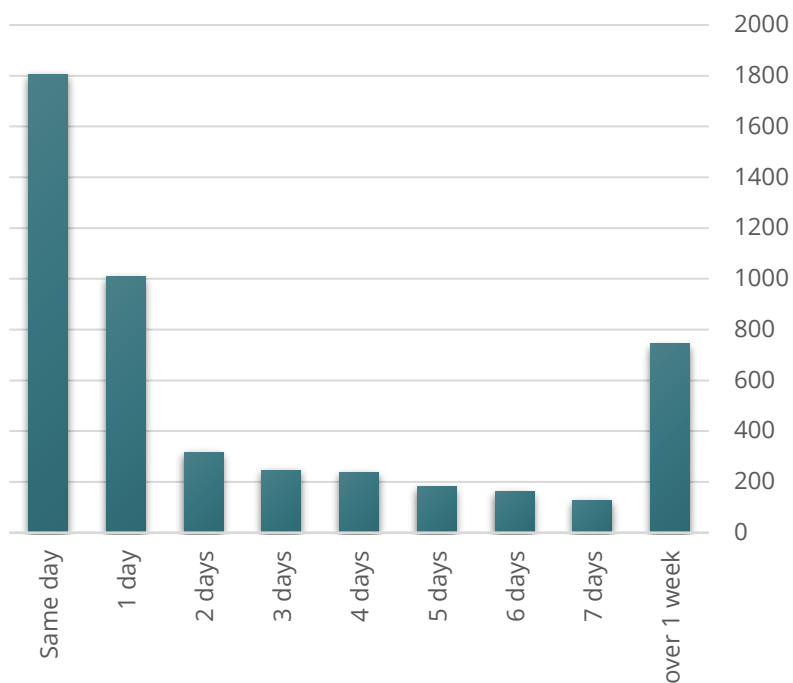


81.9% under 1 week
9.8% 1 to 2 weeks
4.9% 2 to 4 weeks
1.7% 4 to 6 weeks
1.1% 6 to 8 weeks
0.6% over 8 weeks

2,813 corrective maintenance
work orders were completed
within one day

...

*That's **58%** of all
corrective maintenance
work orders!*



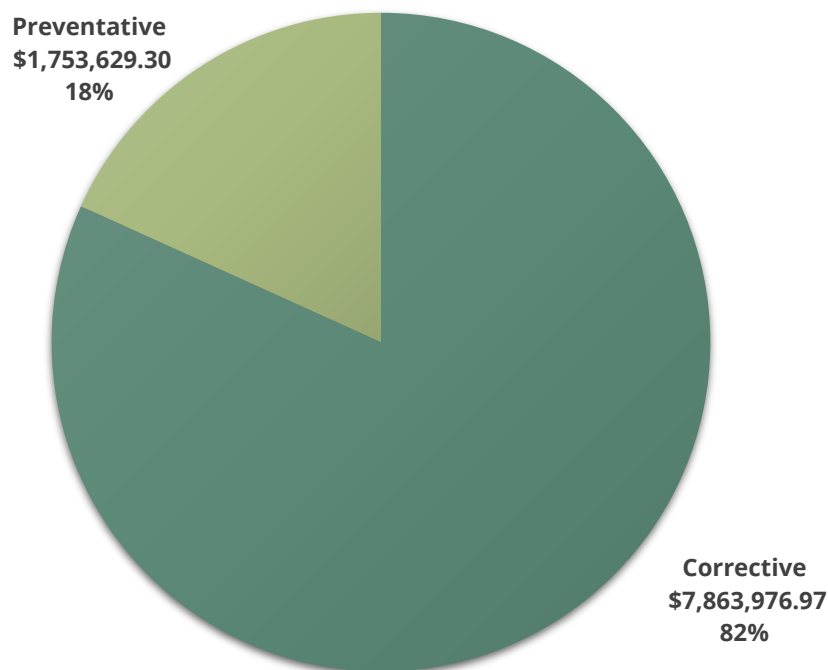
Corrective Maintenance vs. Preventative Maintenance

Corrective Maintenance refers to maintenance tasks performed to identify, isolate, and amend faults so that a damaged aspect of the system can be restored to an operational condition. These tasks are carried out after damage detection. Preventive Maintenance refers to maintenance tasks that are scheduled by staff to maintain and preserve the condition of the roadway system.

Examples of Corrective Maintenance	Examples of Preventive Maintenance
<ul style="list-style-type: none"> • Pothole patching • Sign replacement • Debris and litter removal • Cattleguard repair • Guardrail repair 	<ul style="list-style-type: none"> • Culvert and basin inspection and cleaning • Road surface treatments • Sweeping • Mowing • Cattleguard and guardrail inspections

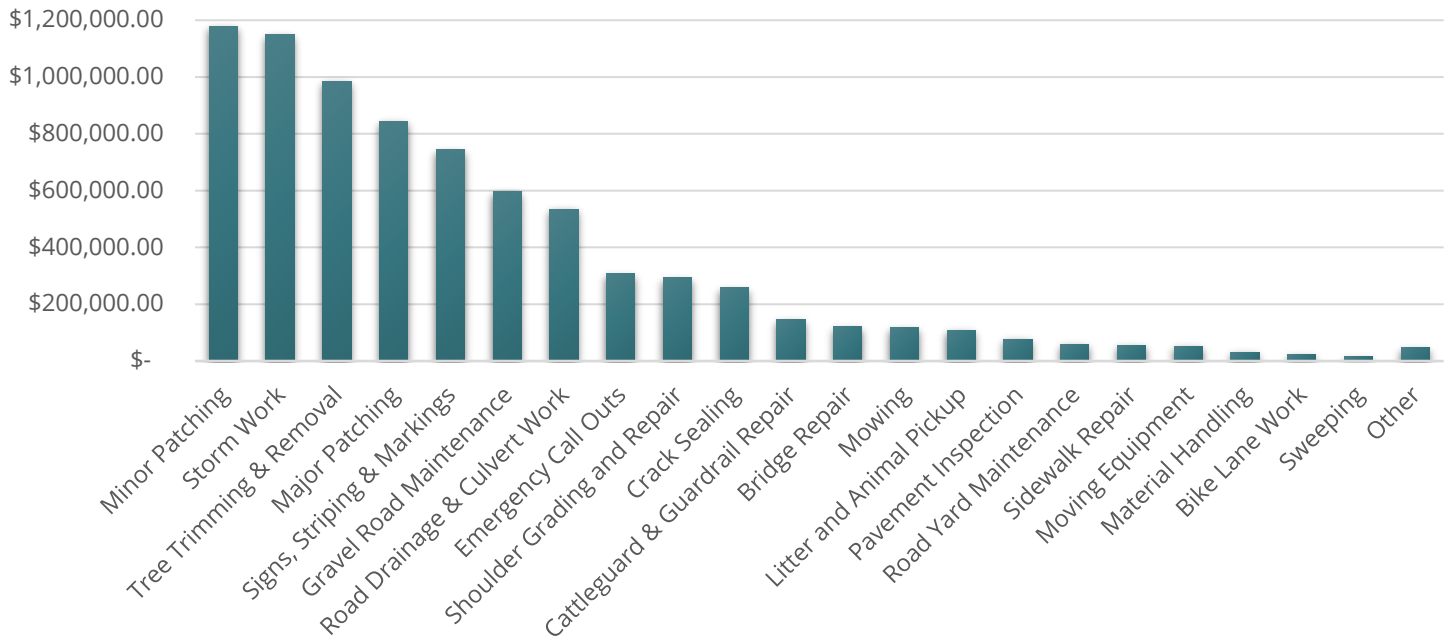
Cost of Road Maintenance Work

Corrective vs. Preventative Fiscal Year 2016-17



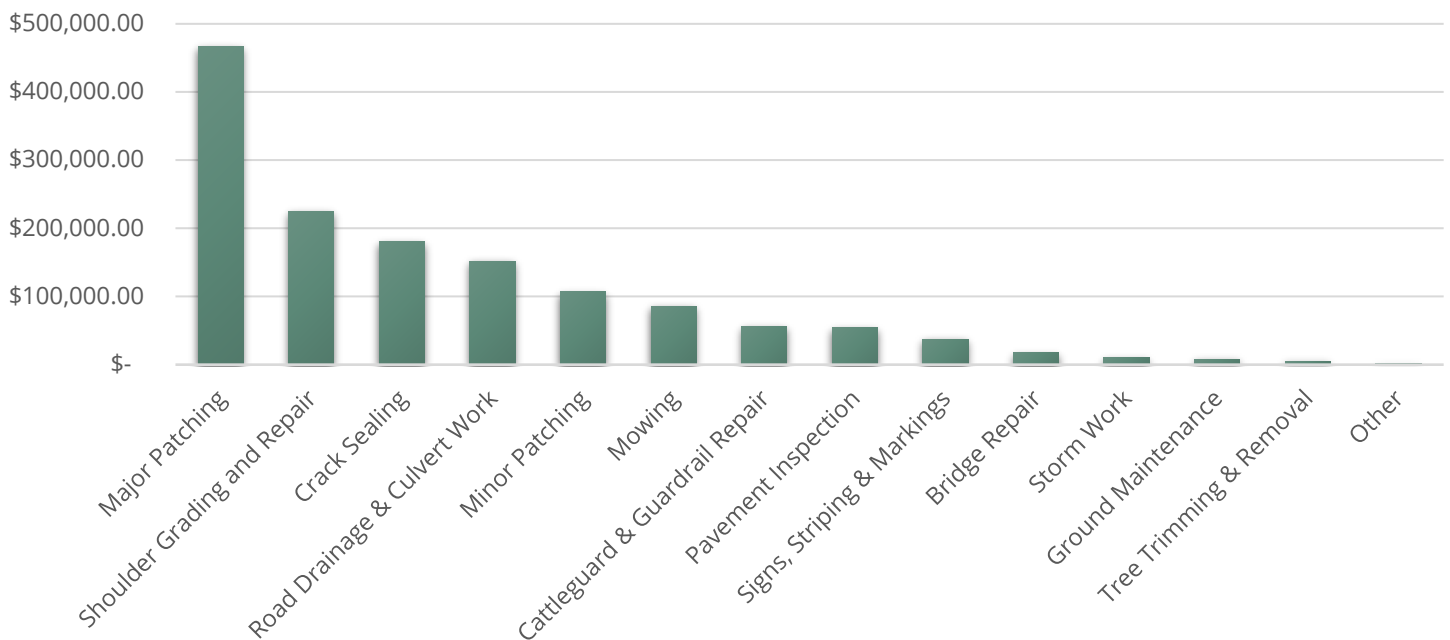
Corrective Maintenance Costs by Service Type

Fiscal Year 2016-17



Preventative Maintenance Costs by Service Type

Fiscal Year 2016-17



Contracted Services

The Public Works Department relies upon annual contracts to supplement staff and provide special services for our community. In these instances, it is more cost-effective for the Department to contract the work with outside vendors rather than try to complete the work in-house. These contracts allow staff to react to incoming requests promptly and manage ongoing maintenance projects, while vendors can focus on specified tasks and apply economy of scale to complete the work more efficiently.

Sweeping and mowing are regularly contracted on an annual basis. These services are ideal for contract work because they are easy to scope, delegate, and monitor. Also, these contracts eliminate the Department's need to maintain seasonal equipment and employ the additional staff required. Roads Maintenance staff are available as needed to supplement the work of the vendors.

Sweeping

Sweeping is provided year-round through an annual contract. Sweeping is considered a Best Management Practice (BMP) under the Water Quality Protection program (page 23). This service helps prevent sediment and debris from entering the storm water system, and is part of the Department's stormwater management efforts.



*Approximately
3,725 curb miles
are swept under
contract each year*

The annual sweeping contract encompasses urbanized areas outlined in the County's NPDES MS4 Permit. The sweeping schedule covers 276 curb miles throughout the county to be swept each month, with an additional 69 curb miles of bike lanes to be swept every other month.

Mowing

Mowing is seasonal work, generally performed from April through June. Routine mowing is important for providing clear line of site, vegetation control, and fire hazard control. Mowing is also one of the many tasks included in preparing a road for new surface treatment.

*In FY 2016-17,
1,754 shoulder miles
were mowed
under contract*



Mowing occurs at a minimum of once per year, and at times twice depending on weather and vegetation growth. Providing this important service through contract helps free up staff during the summer season when work load demands are greater.

Other Contracted Services

The Public Works Department also regularly contracts materials trucking, operated heavy equipment, and tree removals on an as-needed basis. This enables the Department to better meet peak work demands, frees up staff for other maintenance needs, and eliminates the need for low-use specialty equipment, allowing for more cost-efficient management of the Public Works fleet. Overall, contracting these services allows for an opportunity to improve our service to the public while lowering costs.

Future Opportunities for Contracted Services

Annual contracts for specific specialized services allow opportunities for the Department to efficiently and effectively provide service throughout the County. Looking ahead, staff will evaluate which services may be better provided through an annual contract rather than provided in-house, such as paving and striping. These large maintenance tasks may be beneficial for annual contracts because they are time- and labor-intensive, require expensive specialized equipment, and are typically weather dependent.

Maintenance Projects

In addition to corrective and preventive maintenance of the roads system, Roads Maintenance is often charged with installation of special projects. These projects are beyond the scope of corrective and preventive maintenance tasks, but not on the scale of capital improvement projects. These projects may be an emergency repair or could be generated from a corrective maintenance request, storm damage, or preventive maintenance inspection. The projects are small in scale, and are scheduled and completed in-house with engineering, design, and environmental assessments as needed. These maintenance projects are not regularly funded, and are scheduled and completed based on the availability of funding.



MAINTENANCE PROJECT - CULVERT REPLACEMENT ON OLD CREEK ROAD, CAYUCOS

Maintenance Project List

Fiscal Year	Project	Status	Aligned with Program Priority
2015-16	Drainage – Regrade drainage N Street, San Miguel	Complete	Maintenance
	Drainage – Install rock baskets Eve Street, Nipomo	Complete	Betterment
	Drainage – Replace culverts Warren Road, Cambria	Complete	Maintenance
	Drainage – Install stormwater infiltrators Tefft Street, Nipomo	Complete	Betterment
	Drainage – Install stormwater infiltrator N Street, San Miguel	Complete	Betterment
2016-17	Drainage – Install two new inlets and boxes Cambridge Street, Cambria	Complete	Betterment
	Drainage – Replace inlet and culvert Pacific Avenue, Cayucos	Complete	Maintenance
	Drainage – Replace culvert Old Creek Road, Cayucos	Complete	Maintenance
	Drainage – Install new inlet, box, and culvert Second Street, Templeton	Complete	Betterment
	Drainage – Install new inlet and culvert Calle Del Sol, Nipomo	Complete	Betterment
	Drainage – Install new inlet and box Juniper Street, Nipomo	Complete	Betterment
	Road work – Repair road failure Santa Rosa Creek Road, Cambria	Complete	Safety & Maintenance
	Drainage – Replace culverts Cypress Mountain Drive, Templeton	Complete	Maintenance
2017-18	Road work – Rebuild shoulder Bee Rock Road, Bradley	Complete	Safety & Maintenance
	Drainage – Replace damaged culvert pipe River Road, San Miguel	Complete	Maintenance
	Road work – Build berm & recondition shoulders Mountain Springs Road, Paso Robles	Complete	Safety & Betterment
2018-19	Drainage – Install new inlets and culvert E Street, Cayucos	Future	Betterment
	Drainage – Install new inlets Ocean Street & Third Street, Cayucos	Future	Betterment
	Drainage – Install new inlet and box Ocean Street & Fifth Street, Cayucos	Future	Betterment

Surface Treatments – Extending the Life of Our Roads

Preparation

The Public Works Department follows an aggressive surface treatment program. The extent of the Pavement Management Plan (PMP) is outlined in the *2015 Pavement Management Report*. The PMP includes a five-year plan that identifies which roads are eligible to receive surface treatment, with 60 miles of surface treatment per year.

Before surface treatment is applied, each road undergoes extensive preparation by Roads Maintenance staff. Thorough preparation work, as well as the timing of the preparation, is paramount to ensuring that the road and surrounding space is sufficiently ready to receive new surface treatment. Quality preparation will establish a good foundation for which surface treatment can be applied. Good preparation followed by good surface treatment will significantly extend the life of the road.



SURFACE TREATMENT PREPARATION WORK – MAIN STREET, CAMBRIA

Typical preparation work activities include:

- Shoulder work
- Tree trimming
- Patching
- Crack sealing
- Culvert replacement
- Correcting drainage issues

Preparation activities typically begin in late spring, continue through summer, and wrap up by early fall. This timeframe allows Roads Maintenance staff to be available throughout the rainy season for other corrective and preventive maintenance work and storm work.

Surface Treatments

Surface treatment methods identified in the PMP include paving, slurry seal, chip seal, and microsurfacing. While preparation work is completed in-house, surface treatment is largely completed by contractors. The final step in the surface treatment program is to reapply pavement markings and striping. These may be reapplied either by the contractor or by Roads Maintenance staff.



SURFACE TREATMENT WORK – ADELAIDA ROAD, PASO ROBLES

Maintenance Overlay

Maintenance overlay is a type of surface treatment that **allows up to one inch of pavement** to be applied to a road. Maintenance overlays are supplemental to the scheduled overlays outlined in the PMP, thus the treatment is used on roads not included in the Five-Year Overlay List. These roads typically have high maintenance costs and are frequently being repaired. The Maintenance Overlay List on the following page identifies the roads that have been classified as candidates for future maintenance overlay treatment.

Application of a maintenance overlay not only extends the life of these roads, but may also raise the road to a Tier 1 status (a good road). Tier 1 roads are eligible for future surface treatment under the PMP. (Refer to the complete PMP for explanation of Tier 1 through Tier 4 and the overlay schedule.)

The maintenance overlay program is not regularly funded, and therefore is scheduled based on the availability of funds each fiscal year. Maintenance overlays are typically carried out in the spring, once winter costs have been accounted for; in years with minimal storm damage, available funding is used to complete maintenance overlay treatments. In years with moderate or extensive storm damage, available funding is allocated to repair the damaged sites as needed.

Maintenance Overlay List

Sites are listed in alphabetical order.

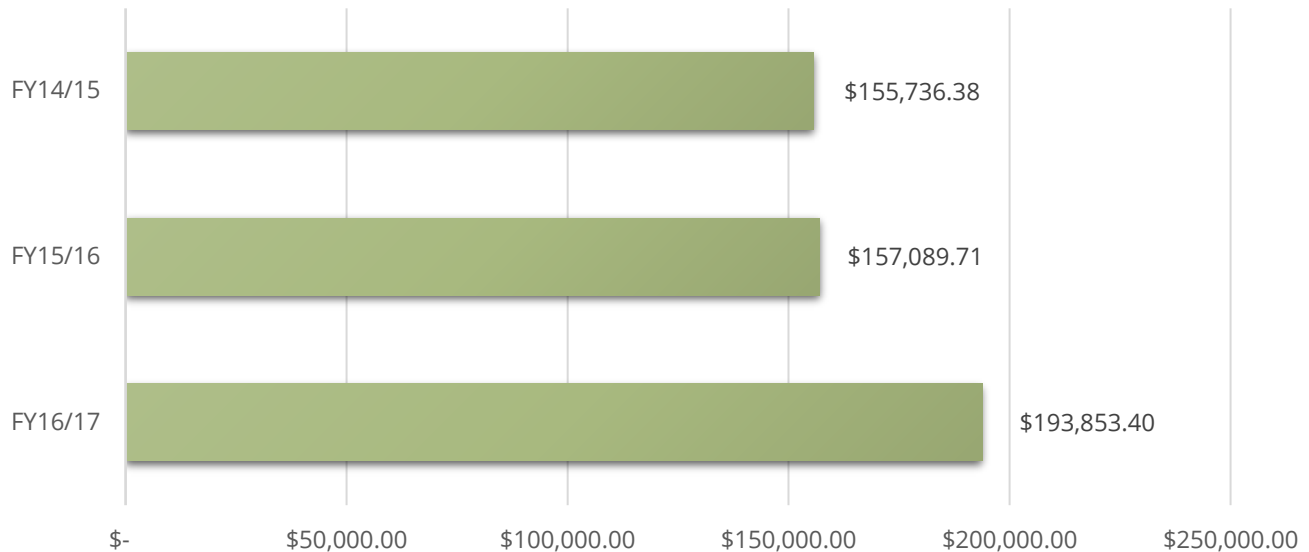
This list does not determine the order or priority of work.

Road Name	Road Number	Pavement Condition Index (PCI)
Arbor Road	5261	8
Avenales Ranch Road	3094	22
Bitterwater Road	3099	22
Carmel Road	4317	26
Cuyama Lane	1162	34
Dana Foothill Road	1065	30
Hog Canyon Road	5518	22
Huer Huero Road	3101	43
Jack Creek Road	5292	7
McMillan Canyon Road	5228	12
Mountain Springs Road	5254	14
Niderer Road	5167	15
Park Hill Road	3092	30
Penman Springs Road	5233	40
Ranchita Canyon Road	6052	24
Ridge Road (Templeton)	4201	16
River Road (Santa Margarita)	3091	25
Rocky Canyon Road	4054	43
San Juan Road (Shandon)	4412	17
San Simeon Creek Road	5267	56
Santa Rosa Creek Road	5086	32
See Canyon Road	2085	28
Shell Creek Road	4413	31
Soda Lake Road	1152	46
South Gillis Canyon Road	5220	20
Suey Creek Road	1069	28
Tassajara Creek Road	3120	25
Tenth Street (San Miguel)	6015	3
Upper Lopez Canyon Road	2098	18
Vetter Lane	2106	60

Environmental Protection

All roads undoubtedly interface with the environment. As such, consideration is given to how maintenance activities impact the environment. Data shows an upward trend in the cost and time invested in reducing these impacts to the environment and complying with environmental regulations.

Annual Environmental Protection Costs



Environmental protection requirements include species checks, permitting (as required), project site mitigation, and monitoring. Services directly affected by this demand include routine culvert maintenance and repair, vegetation trimming and removal, and bridge repair or replacement, among others.

While environmental protection work is typically charged to Environmental Programs, Roads Maintenance absorbs significant costs as well. Costs typically absorbed by Roads Maintenance include species checks in ice plant, trees, and other sensitive habitat; environmental assessments at culvert maintenance sites, creek crossings, and wash outs; and regulatory permitting. Environmental protection costs related to maintenance are attributed to on-going mitigation at 15 project sites, as well as bio-swale inspections and maintenance.

Water Quality Protection

Since 2006, the County has implemented best management practices (BMP's) related to protecting water quality, aquatic habitat, and salmonid fisheries. These best management practices are based on the National Pollutant Discharge Elimination System (NPDES) permit program, to which the County must adhere. In accordance with the NPDES MS4 permit, Roads Maintenance implemented a comprehensive water quality protection manual which primarily addresses maintenance.

Maintenance and repair of road drainage structures is the key component to the program. This includes quarterly, semi-annual, and annual inspection and maintenance of over 4,950 culverts throughout the County road system. Likewise, street sweeping in urban areas is intended to limit the transport of sediment and urban pollutants into the waterways.



CULVERT REPAIR WORK – RIVER ROAD, SAN MIGUEL

Additional MS4 Permit requirements include annual facility assessments, quarterly evaluations of BMP implementation during operations and maintenance activities, and bi-annual staff training on Good Housekeeping & Pollution Prevention. NPDES Permit compliance also requires annual evaluations and reporting of the mandated tasks listed above.

Storm Work



FLOODING – CHOLAME VALLEY ROAD, SHANDON

Storm Preparedness

Every year Roads Maintenance crews carry out planned storm preparedness work, typically performed between September and November. Below is a summary of the planned storm preparedness work completed annually:

- Culvert inspections & maintenance
 - Inspecting approximately 1,250 culverts within the urban reserve boundaries
 - Inspecting approximately 3,700 culverts outside of the urban reserve boundaries
- Pre-storm inspections
 - Checking slide areas
 - Inspecting & clearing drainage ditches
 - Inspecting road basins & performing minor maintenance
- Sand deliveries
 - By request, delivering sand for sandbags to local Community Services Districts
- Sign maintenance
 - Opening ICY signs County-wide
- Yard preparations
 - Checking rain gear
 - Staging equipment
 - Cleaning up and/or covering stock piles
 - Installing any needed BMP's
 - Equipping response vehicles

Storm Response

After years of drought conditions, the 2016-17 rainy season generated unexpectedly severe storm events. The heavy rains resulted in an array of challenges, including flooding, road slip-outs, mud slides, and tree issues. Roads Maintenance crews worked tirelessly throughout the season to keep roads safe during storm conditions. Due to the extent of the damages at several storm sites, Roads Maintenance continues to coordinate corrective efforts with multiple outside agencies, including the Federal Emergency Management Agency (FEMA).



CLOCKWISE FROM TOP LEFT:
RESPONSE TO DOWNED TREES ON DORIS AVENUE | ROAD FAILURE ON SANTA ROSA CREEK ROAD
FLOODING ON AVILA BEACH DRIVE | SHOULDER EROSION ON COTTONTAIL CREEK ROAD

New Goals & Legal Mandates – Where Are We Going?

Goal: Emphasis on Preventative Maintenance

In FY 2017-18, Roads Maintenance will look to expand its preventive maintenance program. By expanding the preventive maintenance tasks, staff anticipates seeing corrective maintenance costs lessen over time. An increase in preventative maintenance should also result in fewer unplanned or corrective maintenance requests, enhancing customer service by allowing crews to quickly respond to new problems. Roads Maintenance staff will also analyze the methods used to categorize and track internally-generated maintenance items in order to provide more in-depth tracking of all maintenance work.

Goal: Replace Aging Culverts

Maintenance and repair of road drainage structures is a crucial component to protecting water quality throughout the County. Roads Maintenance crews inspect, clean, and log the condition of over 4,950 culverts annually. A further evaluation of culvert conditions is carried out each year on the 60 miles of roadway scheduled for surface treatment under the Pavement Management Plan; culvert replacements are then typically completed during the preparation work for the surface treatment. An estimated cost of \$150,000 is anticipated each year for culvert and drainage structure replacements.

Legal Mandate: NPDES Trash Provisions

Costs for complying with water quality protection requirements are expected to trend upward in the coming years, much like environmental protection costs. The current NPDES permit outlines ever-increasing demands for testing, monitoring, inspecting, and reporting from year-to-year. As such, preventive maintenance costs are anticipated to increase in FY 2017-18.

On April 7, 2015, the State Water Resources Control Board adopted statewide trash provisions to address the pervasive impacts trash has on the beneficial uses of surface waters. The trash provisions establish a statewide water quality objective for trash and a prohibition of trash discharge, and require permittees to obtain “full capture” of trash entering stormwater systems in Priority Land Use areas. In FY 2017-18, Roads Maintenance will focus on establishing detailed jurisdictional maps, and outlining the controls that will be implemented over a ten-year period.

Legal Mandate: ADA Transition Plan for the Public Rights-of-Way

The Americans with Disabilities Act of 1990 (ADA) provides for equal access to facilities, services, and other opportunities for individuals with disabilities. On October 7, 2014, the Board adopted the updated Transition Plan for the Public Rights-of-Way. The Transition Plan outlines the construction and replacement of curb ramps, building access signs, parking compliance, traffic signals, and bus stop amenities. The top priority for the County's Transition Plan is to be fully ADA compliant; County staff anticipates a 15-year timeline to fully address ADA compliance, at an estimated cost of \$100,000 per year. *(Refer to Appendix C – Schedule of Compliance in the Public Right-of-Ways)*

Legal Mandate: Traffic Signals – Yellow Change and Red Clearance Levels

The California Manual on Uniform Traffic Control Devices (CAMUTCD) provides uniform standards and specifications for all official traffic control devices in California. The California Traffic Control Devices Committee and Caltrans set a target compliance of August 1, 2017, mandating that all signalized intersections comply with section 4D.26 of the 2014 CA MUTCD for the yellow change and clearance intervals. Also known as yellow and red times, the clearance intervals should be timed based on vehicle approach speeds to provide a safe transition between two conflicting traffic signal phases.

All 21 existing signalized intersections were compliant by the target date; work completed for this mandate had an approximate cost of \$5,000. The Department is also working to review and update all signal timing Countywide, to be completed in Fiscal Year 2018/19. Staff will identify any capital improvements needed at each intersection. The signal timing work is anticipated to cost an additional \$5,000-\$10,000.

Legal Mandate: Horizontal Alignment Warning Signs

The Federal Highway Administration has established a target compliance date of December 31, 2019, for the installation of additional signs and revisions in advisory speed values per CA MUTCD Sections 2C.06 to 2C.14 and Table 2C-5. The mandate was relaxed to require only roads with over 1,000 average daily vehicles (ADT) be completed by the target compliance date.

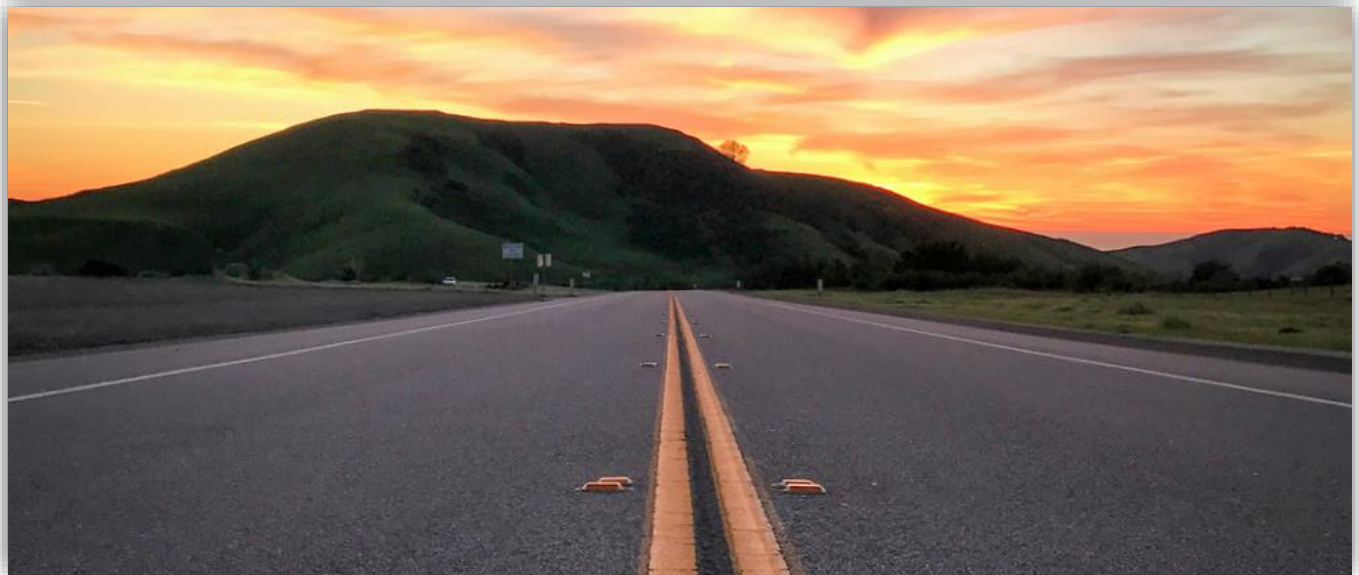
Over 60% of roads >1000 ADT have been rated, and over 30% are currently compliant. Costs for the program are estimated at \$50,000 per year for the next two years.

Legal Mandate: Minimum Sign Reflectivity Standards

Section 2A.08 of the CAMUTCD states that public agencies or officials having jurisdiction shall use an assessment or management method that is designed to maintain sign retroreflectivity at or above the minimum levels specified within the CAMUTCD.

Current methodology used is blanket replacement and expected sign life. Starting in approximately 2008, ASTM Type III sheeting was used for all new and replaced regulatory and warning signs. Beginning in 2017, staff will replace all remaining engineer grade signs to ASTM Type III sheeting for all STOP, YIELD, curve warning, and school signs. ASTM Type III sheeting has an expected sign life of 10 years.

In Fiscal Year 2018-19, Public Works will begin testing and confirming sign retroreflectivity degradation in a geographic area compared to the minimum levels. Signs will be replaced based on installation date and the expected life in that region. Costs for the program will continue to be ongoing and are estimated to be \$50,000 or more per year.



Appendix A

POLICIES TO GOVERN THE OPERATION AND MAINTENANCE OF THE COUNTY HIGHWAY SYSTEM

Since the County has limited funds for highway maintenance, improvements, and betterments and does not have the funds to perform all the work it would perform if it had unlimited resources, staff efforts and Road Fund allocations for the operation, maintenance, and improvement of the County highway system shall be prioritized as follows:

I. GENERAL HIGHWAY SAFETY

A. Road Maintenance *(first priority)*

A well-maintained County highway system, particularly one which provides good driving surfaces, promotes road safety by reducing opportunities for roadway collisions and injuries and also by reducing the frequency for maintenance crews to occupy the roadway. Furthermore, a well-maintained County highway system requires less funding and fewer County resources when compared to poorly maintained highways; which ultimately frees up resources for other uses.

1. Pavement Management: Public Works shall prepare and regularly update a pavement management plan. This plan shall use current technology and best practices to maximize the level of service to the public, optimize the pavement condition of the overall County highway system and minimize the maintenance and operation cost. The pavement management goals for each year should be included as part of the annual budget review and approval process.
2. Bridge Maintenance: Maintain the County bridges in a safe and usable condition. Structurally deficient bridges should be addressed or replaced.
3. Per Resolution 2007-344, limit adding new streets to the County maintained system to areas serving high density commercial or residential development.
4. Consider terminating or abandoning County maintenance on roads serving fewer than five occupied parcels through the appropriate statutory procedures.
5. Sidewalks shall be maintained in accordance with the Streets and Highway Code.
6. Compliance with the Americans with Disability Act (ADA) at existing intersections shall be funded by the County per the adopted Title II Transition Plan for public rights-of-way.

B. Road Improvements *(second priority)*

The aim is for the overall collision rate for the County highway system to be below the overall State collision rate. A priority shall be placed on those projects that:

1. Reduce collision rates below State average
2. Improve roadway sight distance
3. Provide lighting for identified roadway safety needs
4. Address identified Safe Route to School needs as primary focus for grant applications
5. Drainage projects that improve road surface conditions

II. ROADWAY BETTERMENTS *(third priority)*

In addition to roadway safety and maintenance needs, there are other desired improvements or betterments to the County highway system that promise to offer an improved level of service to the public. These should typically be addressed as follows:

- A. Upgrading roads, including paving gravel roads, should be funded by the affected property owners under the Board of Supervisors' adopted Cooperative Road Program; which are developed through County Service Area 21.
- B. Increasing roadway capacity or providing additional access to mitigate cumulative impacts from development shall be funded by development through one of the County's Road Improvement Fee programs.
- C. The following types of projects should be funded through outside grants sources such as ATP, CMAQ, and RSHA grant programs:
 1. Develop and improve bikeways (per the County Bikeways Plan)
 2. Implement downtown streetscape projects
 3. Construct pedestrian routes
 4. Construct "Complete Streets" projects
- D. Maintenance for street lighting, landscaping, and other non-transportation street features shall be funded outside of the road fund. Inclusion of these amenities within the County right-of-way will require funding and maintenance by the local community via a community services district, a community services organization, a non-profit agency, or other community group.

III. ROAD DESIGN

Design standards for road construction are intended to promote safety and to reduce the maintenance demand on County resources. Therefore, new roads or improvements to existing roads in the County maintained system shall conform to the Public Improvement Standards adopted by the Board of Supervisors. Deviations from these standards should only be allowed after proper documentation for a design exception and when approved by the Director of Public Works or his designee.

Appendix B

Roads Maintenance Equipment List

Operated Equipment

- 24 Pickup Trucks
- 18 Dump Trucks
- 12 Utility/Service Trucks
- 9 Loaders
- 7 Graders
- 5 Mower Tractors
- 5 Rollers
- 5 Sweepers
- 4 Water Trucks
- 3 Backhoes
- 2 Aerial Trucks
- 2 Forklifts
- 2 Hot Patch Trucks
- 2 Plow Trucks
- 2 Sewer Cleaners
- 2 Transfer Trucks
- 2 Truck Tractors
- 1 Articulated Crane
- 1 Chip Truck
- 1 Dozer
- 1 Excavator
- 1 Paver
- 1 Road Widener
- 1 Skid-Steer
- 1 Striper

Other Equipment

- 20 Trailers
- 5 Portable Message Boards
- 4 Sprayers
- 3 Skid-Mounted Sprayers
- 2 Chippers
- 2 Compressors
- 2 Crack Seal Machines
- 2 Generators
- 2 Pumps
- 1 Curb Builder
- 1 Epoxy Dispenser
- 1 Hydro-Mulcher
- 1 Pavement Blower
- 1 Pavement Marking Remover
- 1 Pavement Saw
- 1 Radar Speed Trailer
- 1 Thermoplastic Machine
- 1 Vibratory Compactor
- 1 Walk-Behind Striper

Appendix C

Schedule of Compliance in the Public Rights-of-Ways

<i>Milestone</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Year 6</i>	<i>Year 7</i>	<i>Year 8</i>	<i>Year 9</i>	<i>Year 10</i>	<i>Year 11</i>	<i>Year 12</i>	<i>Year 13</i>	<i>Year 14</i>	<i>Year 15</i>
Curb Ramps															
Ramps to Public Buildings	X	X	X	X											
Commercial area					X	X	X	X	X						
Residential area										X	X	X	X	X	X
Building Signage															
Public Entrance (directional)	X	X	X	X											
On Street Parking (compliant)	X														
Traffic Signals															
Pedestrian push button (height)					X	X	X	X	X						
Tape at pedestrian push button					X	X	X	X	X						
Audible signals										X	X	X	X	X	X
Bus Stops (via Regional transit Agency)															
Sidewalk Access:															
Public building	X	X	X	X	X	X									
Commercial area							X	X	X	X	X	X			
Residential area													X	X	X